BAZHENOV, S.V., dotsent; STUDENTSOV, A.P., professor; PETUKHOVSKIY, A.A., professor.

"The History of Veterinary Medicine in the U.S.S.R." V.M.Kerepov. Reviewed by S.B.Bazhenov, A.P.Studentsev, A.A.Petukhevskii. Veterinariia 33 no.1:83-87 Ja '56. (MLRA 9:4)

1.Kiyevskiy gosudarstvennyy veterinarnyy institut (for Bazhenov).
2.Kazanskiy gosudarstvennyy veterinarnyy institut (for Studentsev).
(VETERINARY MEDICINE)

BAZHENOV, S.V., dotsent; SIVOLOZHSKIY, T.Ya., assistent; LITVIN, M.M., starshiy laborant, veterinarnyy vrach.

New manual on veterinary pharmacology ("Veterinary pharmacology". Reviewed by S.V. Bazhenov, I.IA. Sivolozhskii, M.M. Litvin). Veterinariia 33 no.6:88-90 Je '56. (MLRA 9:8)

1. Kafedra farmakologii Kiyevskogo gosudarstvennogo veterinarnogo instituta.
(Veterinary materia medica and pharmacy)

BAZHENOV, S.V., dotsent.

Tasks of veterinary toxicology for the sixth five-year plan.
Veterinariia 33 no.9:20-22 S '56. (MLRA 9:10)

1.Kiyevskiy veterinarnyy institut.
(Veterinary medicine) (Poisons--Physiological effect)

BAZHENOV, Sergey Vasil'yevich; GOL'DSHTEYN, S.A., red.; CHUMAYEVA, Z.V., tekhn. red.

[Veterinary toxicology] Veterinarnaia toksikologiia. Izd.2., ispr. i dop. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1958. 392 p. (Veterinary toxicology) (Poisons) (MIRA 11:9)

BAZHENOV, S.V., dots.

One hundred and fifty years of advanced veterinary training in the U.S.S.R. (1808-1958). Veterinariia 35 no.11:74-75 N '58.

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk.
(Veterinary medicine--Study and teaching)

BAZHENOV, S. V. Docent

" About veterinary biographies and bibliographies."

Veterinariya, Vol. 37, No. 10, 1960, p. 83

Ukr. acad. agric. sci.

RODIONOV, P.V., prof.; BAZHENOV, S.V., prof.; SLAST'ON, M.I., dotsent (Kiyev)

"Medicinal plants and their use by the people" by M.A. Nosal', I.M. Nosal'. Reviewed by P.V. Rodionov, S.V. Bazhenov, M.I. Slast'on. Vrach. delo no. 3:147-148 Mr '61. (MIRA 14:4)
(BOTANY, MEDICAL) (NOSAL', M.A.) (NOSAL', I.M.)

BAZHENOV, S.V., dotsent

"Biographical dictionary of workers in natural science and engineering," vols. 1-2. Reviewed by S.V.Bazhenov. Veterinariia 37 no.10:83-86 O '60. (MIRA 15:4)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk.
(Russia—Biobibliography)
(Veterinary medicine—Biobibliography)

PAZHENOV, S. V., (Professor, Ukrainian Academy of Agricultural Sciences)

Valuable work on the history of veterinary medicine. (1)

Veterinariya vol. 38, no. 9, September 1961, pp. 87

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[1] In "Trudy Vsesoyuznogo institute eksperimental'noi veterinarii," V. XXIII, Moscow, 1959.

KALUGIN, V.I., kand.veterin.nauk; BAZHENOV, S.V., prof.; KRAPIVNER, L.M.

History of veterinary medicine. Veterinariia 40 no.9:77-82 S '63.
(MIRA 17:1)

BAZHENOV, S.V., prof.; BORSHOSH, A.V.

Book reviews and bibliography. Veterinariia 38 no.9:87-89 S '61. (MIRA 16:8)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk (for Bazhenov). 2. Starshiy veterinarnyy vrach tresta "Zakarpatles" Stanislavskogo soveta narodnogo khozyaystva (for Borshosh).

BAZHENOV, Sergey Vasil'yevich

[Veterinary toxicology] Veterinarnaia toksikologiia. Izd.3., perer. i dop. Leningrad, Kolos, 1964. 375 p. (MIRA 18:11)

BAZHENOV, V.

How we organized tower crane operations. Stroitel' 2 no.4-5:20 Ap-My '56. (MLRA 10:1)
(Cranes, Derricks, etc)

BAZHENOV, V., inzh.

Simplify the structure of management in the construction industry.
Sots.trud 5 no.3:125-126 Mr '60. (MIRA 13:6)

1. Otdel truda i zarabotnoy platy Stalingradskogo sovnarkhoza.
(Stalingrad construction industry)

BAZHENOV, V.

"Surgical treatment of pulmonary tuberculosis; a manual for the practicing physician" by [kand.med.nauk] G.S.Levin. Reviewed by V.Bazhenov. Zdrav. Belor. 6 no.4:73 Ap '60. (MIRA 14:5)
(TUBERCULOSIS) (LUNGS--SURGERY) (LEVIN, G.S.)

ACC NR: AP5028568 SOURCE CODE: UR/0209/66/000/008/0042/0046

AUTHOR: Koval', A. (Candidate of technical sciences); Bazhenov, V.; Straut, Ye.

ORG: none

TITLE: From model to lunar vehicle

SOURCE: Aviatsiya i kosmonavtika, no. 8, 1966, 42-46

TOPIC TAGS: aerospace conference, lunar surface, lunar surface vehicle, scale model

ABSTRACT:

The authors discuss the development of a mobile automatic lunar station (MALS), on the basis of papers presented by Soviet specialists at the first international space-technology conference, held in France in June 1966.

Building stands for perfecting the design elements on full-scale mock-ups will present many difficulties. Therefore, it will be more efficient to develop the design elements on MALS models under simulated lunar conditions. In this way, existing pressure chambers and other equipment can be used. Not only the lunar landscape but also the lunar surface

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should be simulated.

Taking the works of professors V. V. Sharonov and V. S. Troitskiy into consideration, as well as data obtained by Luna-9, it is concluded that the lunar surface has a hard structure; from an analysis of Luna-9 data it is possible to conclude that the strength of the moon's surface is about 1 kg/cm^2. During its operation Luna-9 increased its inclination 6.5° and turned 3°. Although the reasons for this have not yet been determined, it can be assumed that the position change was somehow connected with the stoniness of the surface. The lunar surface in the Luna-9 landing area is dotted with numerous stones and clods of various sizes, from several centimeters to several decimeters. The Luna-9 landed in an 18-m-diameter crater with a depth of about 0.7 m. The presence of several small craters with steep slopes (up to 55°) was noted. All of these lunar surface details must be taken into consideration in developing a mobile automatic lunar station.

The initial scales for modeling are length, modulus of elasticity, materials, and acceleration of gravity. All other scales (i.e., mass density, speed, forces, etc.) needed to develop an MALS model, and to convert the experimental results obtained from the study of an actual scale model of a

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lunar station, can be deduced from the three main scales mentioned above on the basis of the similarity of conditions. To have similar conditions, it is necessary that the MALS models and their undercarriages be made from materials with the same Poisson's ratio and coefficient of friction as those of the full-scale design. The gravity scale is determined by the experimental conditions. The final selection of model dimensions and materials is made, taking into account the overall dimensions and capabilities of the testing equipment, pressure chambers, and test ranges. The development of MALS models built to 1/6, 1/3, and 1/1 scales is discussed. If the dimensions of a model are decreased by six times, it is better to make the model from the same materials as the full-scale design. For the 1/6 scale model, the linear speed scale is equal to 1. Running tests as well as some operational tests of a 1/6 scale model can be carried out in a pressure chamber simulating the lunar vacuum. Due to the small value of the scale of mass, however, the development of a mobile model with such small overall dimensions, while retaining similarity, can create a number of difficulties.

It is considerably simpler to develop an MALS model on a scale of 1/3 or 1/2. In developing a full-scale model, the scale of mass should be six times smaller than full-scale mass. In this case, a full-scale undercarriage for the model is developed from full-scale materials. The re-

MANN, U.B. [Mann, W.B.]; SELIGER, G.G. [Seliger, H.H.]; BAZHENOV, V.A. [translator]; BOCHKAREV, V., red.; SAGURO, M.A., red.; VLASOVA, N.A., tekhn.red.

[Preparation and uses of standard radioactive specimens] Prigotovlenie i primenenie etalonnykh radioaktivnykh preparatov. Moskva, Gos.izd-vo lit-ry v oblasti atomnoi nauki i tekhniki, 1960. 102 p. (MIRA 14:3)
(Radioactive substances--Standards)

BAZHENOV, V A

LATYSHEV, G. D.

176

PHASE I BOOK EXPLOITATION SOV/5410

Tashkentskaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii. Tashkent, 1959.

Trudy (Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy) v. 2. Tashkent, Izd-vo AN UzSSR, 1960. 449 p. Errata slip inserted. 1,500 copies printed.

Sponsoring Agency: Akademiya nauk Uzbekskoy SSR.

Responsible Ed.: S. V. Starodubtsev, Academician, Academy of Sciences Uzbek SSR. Editorial Board: A. A. Abdullayev, Candidate of Physics and Mathematics; D. M. Abdurasulov, Doctor of Medical Sciences; U. A. Arifov, Academician, Academy of Sciences Uzbek SSR; A. A. Borodulina, Candidate of Biological Sciences; V. N. Ivashev; G. S. Ikramova; A. Ye. Kiv; Ye. N. Lebanov, Candidate of Physics and Mathematics; A. I. Nikolayev, Candidate of Medical Sciences; D. Nishanov, Candidate of Chemical Sciences; A. S. Sadykov, Corresponding Member, Academy of Sciences USSR, Academician, Academy of Sciences Uzbek SSR; Yu. N. Talanin,

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Transactions of the Tashkent (Cont.) SOV/5410

Candidate of Physics and Mathematics; Ya. Kh. Turakulov, Doctor of Biological Sciences. Ed.: R. I. Khamidov; Tech. Ed.: A. G. Babakhanova.

PURPOSE : The publication is intended for scientific workers and specialists employed in enterprises where radioactive isotopes and nuclear radiation are used for research in chemical, geological, and technological fields.

COVERAGE: This collection of 133 articles represents the second volume of the Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy. The individual articles deal with a wide range of problems in the field of nuclear radiation, including: production and chemical analysis of radioactive isotopes; investigation of the kinetics of chemical reactions by means of isotopes; application of spectral analysis for the manufacturing of radioactive preparations; radioactive methods for determining the content of elements in the rocks; and an analysis of methods for obtaining pure substances. Certain

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instruments used, such as automatic regulators, flowmeters, level gauges, and high-sensitivity gamma-relays, are described. No personalities are mentioned. References follow individual articles.

TABLE OF CONTENTS:

BAZHENOV, V. A.

PHASE I BOOK EXPLOITATION SOV/6333

Bochkarev, V. V., ed.

Tekhnika izmereniye radioaktivnykh preparatov; sbornik statey (Techniques for the Measurement of Radioactive Preparations; Collection of Articles) Moscow, Gosatomizdat, 1962. 4600 copies printed.

Eds.: A. M. Smirnova and M. A. Smirnov; Tech. Ed.: S. N. Popova.

PURPOSE: This book is intended for specialists in nuclear instrumentation.

COVERAGE: The book is a collection of articles on recent developments in 1) measurement of the activity and 2) analysis of the composition of emissions of radioactive preparations. The methodology and apparatus used in these studies are described in detail. References are given at the end of each article.

TABLE OF CONTENTS:

Card 1/[illegible]

Card 3/5

BAZHENOV, V.A.

PHASE I BOOK EXPLOITATION 307/5563

Metody polucheniya i issledovaniya radioaktivnykh preparatov; sbornik statey (Methods for the Production and Measurement of Radioactive Preparations; Collection of Articles) Moscow, Atomizdat, 1960. 307 p. Errata slip inserted. 6,000 copies printed.

General Ed.: Valeriy Viktorovich Bochkarev; Ed.: M.A. Sagure; Tech. Ed.: N.A. Vlasova.

PURPOSE: This collection of articles is intended for scientific and technical personnel working in the production of radioactive isotopes.

COVERAGE: The collection contains original studies on methods of obtaining and measuring radioactive preparations. According to the foreword, the articles contain new data, and are of theoretical or practical interest to the extent that they discuss methods or give process information. In addition to several survey articles the collection contains discussions on the production of radioactive isotopes and inorganic radioactive preparations, including a number of carrier-free isotopes and several colloidal and other therapeutic preparations. Also discussed are methods for preparing a number of tagged organic compounds, problems in the analysis of tagged organic compounds, the absolute and relative measurement of activity, and the radiometric analysis of preparations. New instruments and equipment are described and instructions concerning measurement methods and techniques are included. V.I. Levin, candidate of Chemical Sciences, V.P. Shibayev, candidate of Technical Sciences, I.P. Bukarev, candidate of Biological Sciences, and V.I. Spitsyn, candidate of Chemical Sciences, are mentioned as having helped directly in the selection and preparation of the material for publication. References accompany each article.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress (QD466.B47)

BAZHENOV, V.A.; BOCHKAREV, V.V.

Absolute measurement of the activity of beta-radioactive liquids. Izm.tekh. no.1:55-57 Ja '62. (MIRA 14:12)
(Radioactivity—Measurement)

S/115/63/000/002/008/008
E194/E155

AUTHORS: Bazhenov, V.A., Bochkarev, V.V., and Sokolova, T.N.

TITLE: Sorption effects in measuring the radioactivity of gases

PERIODICAL: Izmeritel'naya tekhnika, no.2, 1963, 57-59

TEXT: In measuring the radioactivity of gases with gas-filled radiation counters, the absorption of β-radiation by the walls and end-effects cause errors which have both been thoroughly discussed, particularly in the non-Soviet literature. However, there are also two sorption effects: some of the material becomes firmly attached to the walls and remains there after the chamber has been nominally swept free; and some becomes temporarily attached to the walls during measurements, so disturbing them, but is afterwards released and swept out, so that the effect cannot be directly observed. Tests were made to determine the relative importances of these effects. A chamber, filled with a gas tagged with a source of β-radiation, has a thin mica window in one end over which is placed an end counter. The chamber also contains a layer of material of such a thickness as to absorb β-particles of maximum energy.

Then if this layer is placed next to the window without breaking vacuum, the counter records only β-particles from substances attached to the inner surface of the mica and to the surface of the layer. It can be confirmed that radiation originating in the gas filling of the chamber is not being counted by withdrawing the layer and inserting an analogous layer between the mica window and the counter. This gives the background level. After sweeping the chamber, the background contamination due to irreversible sorption can be determined. The actual experimental chamber, made of duralumin, was 178 mm long and 50 mm diameter with a window of 1 cm^2. A disk with 12 positions could be placed at various distances in front of the window so that the material of the layer could be altered without breaking vacuum or changing the gas. The gas used was CS_2 tagged with S^{35} with a specific activity of 25 milliCurie per gram of liquid carbon disulphide. Surface sorption was studied on the following materials: teflon, mica, special lubricant for CS_2, brass, aluminium, methylmethacrylate, polished and unpolished ebonite, rubber mastic and sheet vacuum-rubber. The experimental procedures are described in some detail. The materials were found to fall into two groups: the first

instantaneously acquire a certain surface activity which then increases exponentially with time (PVC, ebonite, methylmethacrylate). The other group includes the remaining materials except the rubber mastic, in which surface activity instantaneously reaches a certain value which then remains constant. The relative sorptions of samples of the different substances, i.e. the percentage of the radioactivity picked up by 1 cm^2 of the given surface to the activity of 1 cm^3 of the chamber was: teflon 5; mica 5; brass 6.5; aluminium foil 6.5; methylmethacrylate 13; PVC 28; polished ebonite 30; rubber mastic 39; rubber 45; unpolished ebonite 65. For materials of the first group the calculation is made for an exposure time of 26 hours. From these data it is possible to assess the sorption of CS_2 in particular experimental equipment. Thus the activity of CS_2 sorbed on the walls of the measuring chamber filled with radioactive carbon disulphide was directly measured. A large proportion of the sorption was reversible and so is not revealed by background measurements after cleaning. The sorption effects are very considerable, and differ for different materials. There are 4 figures.

BAZHENOV, V.A.; KHARUK, Ye.V.

Testing the permeability of pine wood to nitrogen and antiseptic solutions. Trudy Inst. lesa i drev. 65:20-47 '63. (MIRA 16:10)

UGOLEV, Boris Naumovich, dots., kand. tekhn. nauk; BAZHENOV, V.A., prof., doktor tekhn.nauk, retsenzent; SERGOVSKIY, P.S., red.

[Testing wood and wood materials] Ispytaniia drevesiny i drevesnykh materialov. Moskva, Lesnaia promyshl., 1965. 250 p. (MIRA 18:4)

L 40905-66 EWT(1)/EWT(m)/FCC/EWP(t)/ETI IJP(c) GW/JD

ACC NR: AP6011373 SOURCE CODE: UR/0362/66/002/003/0308/0311

AUTHOR: Bazhenov, V. A.; Ivanova, R. N.; Miroshnikov, M. M.

ORG: none

TITLE: Determination of the mass of H_2O, CO_2, and O_3 in various layers of the atmosphere

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 2, no. 3, 1966, 308-311

TOPIC TAGS: atmospheric moisture, atmospheric ozone, carbon dioxide, atmospheric optics

ABSTRACT: A method is described for calculating the mass of absorbing gases (H_2O, CO_2, and O_3) along inclined paths which connect any two points in the atmosphere. The curvature of the earth and refraction are taken into account. The vertical distribution of the concentration of gases is assumed given. The magnitude of refraction is determined by the height variation of the index of refraction of air. A nomogram is plotted on the basis of information on the refraction curvature of an optical ray in the atmosphere. The nomogram is used to determine the height of the observer, the height of the radiation source, the zenith angle of observation, the zenith angle of radiation, and the distance between the observer and the radiation source. If any three of these geometric quantities are known, the remaining ones can be determined by using the nomogram. A formula is given for determining the mass of the absorbing gas. After

Card 1/2 UDC: 551.510.03:551.593.1

L 40905-66
ACC NR: AP6011373

3

determining the mass of the absorbing gas on the path of the ray in a given stratum of the atmosphere, the absorption radiation by the stratum is determined. The author thanks B. S. Neporent, Ye. O. Fedorova, and M. S. Kiseleva for their important comments while performing this study. Orig. art. has: 2 tables, 4 figures, and 3 formulas.

SUB CODE: 04/ SUBM DATE: 13Oct65/ ORIG REF: 002/ OTH REF: 006

Card 2/2 mlp

L 09154-67 EWT(m)
ACC NR: AP7002769 SOURCE CODE: UR/0089/66/021/002/0141/0142

AUTHOR: Bazhenov, V. A.; Bochkarev, V. V.; Golubov, Yu. M.; Lovin, I. V.; Sokolova, T. N.; Turkin, A. D. 15

ORG: none

TITLE: Measurements of activity of radioactive gases by means of spherical ionization chamber 14

SOURCE: Atomnaya energiya, v. 21, no. 2, 1966, 141-142

TOPIC TAGS: ionization chamber, radioactivity measurement

ABSTRACT: A spherical, 24-cm ionization chamber with a copper barrier, filled with air under atmospheric pressure and operating in the -spectrum energy range (0.15 to 2.20 Mev) was used for measuring the gas activity in experiments with ^{133}Xe, CO_2 (labeled with ^{14}C), ^{131}Xe, ^{85}Kr, and ^{41}Ar gases. The gas activity was determined by means of compensation counters. The order of error was about 2.5%. The results showed that only ^{14}C, ^{85}Kr, and ^{41}Ar with simple spectra could be used, while ^{133}Xe and ^{131}Xe, with their conversion electrons, could not be used. The average current magnitudes K per particle in the chamber were correlated with the theoretical values and the results agreed within 25 to 30%. Orig. art. has: 1 figure and 1 table. [NA]

SUB CODE: 18 / SUBM DATE: 19Jul65 / ORIG REF: 002 / OTH REF: 001

Card 1/1 nst UDC: 543.52.539.107.42

0925 1647

BAZHENOV, V. A. and V. Ye. VIKHROV

"The Moisture Content of Wood in the Trunks of Deciduous Trees"
Doklady Akad. Nauk SSSR, 60, No. 3, 489-91 (1948)

Inst. Forestry, Acad Sci USSR

PA 165T81

BAZHENOV, V. A.

USSR/Physics - Piezoelectrics 11 Mar 50
Lignin

"Piezoelectric Properties of Wood (Lignin)," V. A. Bazhenov, V. P. Konstantinova, Inst of Forests, Inst of Cryst, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol LXXI, No 2, pp 283-286

Shows variation of magnitude and sign of the charge as a function of the position of flexture in the piezoelement (relative to direction of grain), with diagrams and tables. Submitted 18 Jan 50 by Acad V. N. Sukachev.

165T81

BAZHENOV, V. A. PA 176T36

USSR/Engineering - Wood 1 Aug 50

"Influence of Swelling Upon Deformation of Pre-pressed Wood," V. A. Bazhenov, Yu. M. Ivanov, Timber Inst, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol LXXIII, No 4, pp 663-666

Discusses results of investigation into deformation and also strength of dry wood first subjected to pressure in dry state and then to swelling in water with subsequent drying (seasoning). Graphs give deformation (mm) vs load (kg) for various species, stress directions, etc. Submitted 9 Jun 50 by Acad V. N. Sukachev.

[redacted] 176T36

BAKHENOV, V.A.

[Wood permeability to liquids and its importance for practical purposes] Pronitsaemost' drevesiny shidkostiami i ee prakticheskoe znachenie. Moskva, Izd-vo Akademii nauk SSSR, 1952. 82 p. (MLRA 6:8)
(Wood--Permeability)

BAZHENOV V.A.

USSR

The water permeability of wood. V. A. Bazhënov. *Trudy Inst. Lesa, Akad. Nauk S.S.S.R.* 9, 188–204(1953).—B. detd. the H_2O permeability (I) of a no. of woods (oak, beech, birch, maple, and pine). The peripheral surface of wood test samples 18 mm. in diam. and varying in length was covered with an impermeable membrane; 1 end of the piece was tightly connected to a graduated vertical glass tube, the other end placed in a metal container, and the amt. of H_2O vapor evapg. from the lower end of the test piece was detd. by absorption in a hygroscopic satd. salt soln. A study was made of the I of oak heartwood tangential and radial cross sections contg. 18% H_2O under a 100-cm. H_2O head. For lengths of 20.7*t* (*t* = tangential), 30.0*r*, 35.5*t* (*r* = radial), 30.0*r*, 30.0*r*, 29.5*r*, 20.7*t*, 21.3*r*, 16.2*t*, 14.4*r*, and 9.0*t* cm., and for periods of 20, 18, 20, —, 31, 18, 8, 8, 8, 6, and — days; the % H_2O in the samples was 26.0, —, 25.7, 24.0, 25.8, 24.1, 30.0, 31.3, 32.2, 28.0, and 70.0%, the relative humidity at the bottom end of the sample 33, —, 77, —, 77, 33, 77, 77, 77, 77, and 77%, and the I in cc./day 0.077, —, 0.050, —, 0.064, 0.093, 0.072, 0.094, 0.100, 0.128, and 0.166. Liquid H_2O did not pass through any of the above samples, or through beech or maple at low H_2O pressures, but did pass through birch and pine sapwood. The characteristics of I are considered to be detd. by the intensity of H_2O or H_2O vapor cond. through a standard sample at equil. and at its av. H_2O content, and as secondary characteristics, the curves of H_2O permeability and the distribution of H_2O across the length of the sample under the test conditions given above. John Lake Kraya

BAZHENOV, V. A.

USSR

The permeability of sapwood and wood to liquids, and the p... of its coat... V. Bazhenov

BAZHENOV, V.A.

USSR

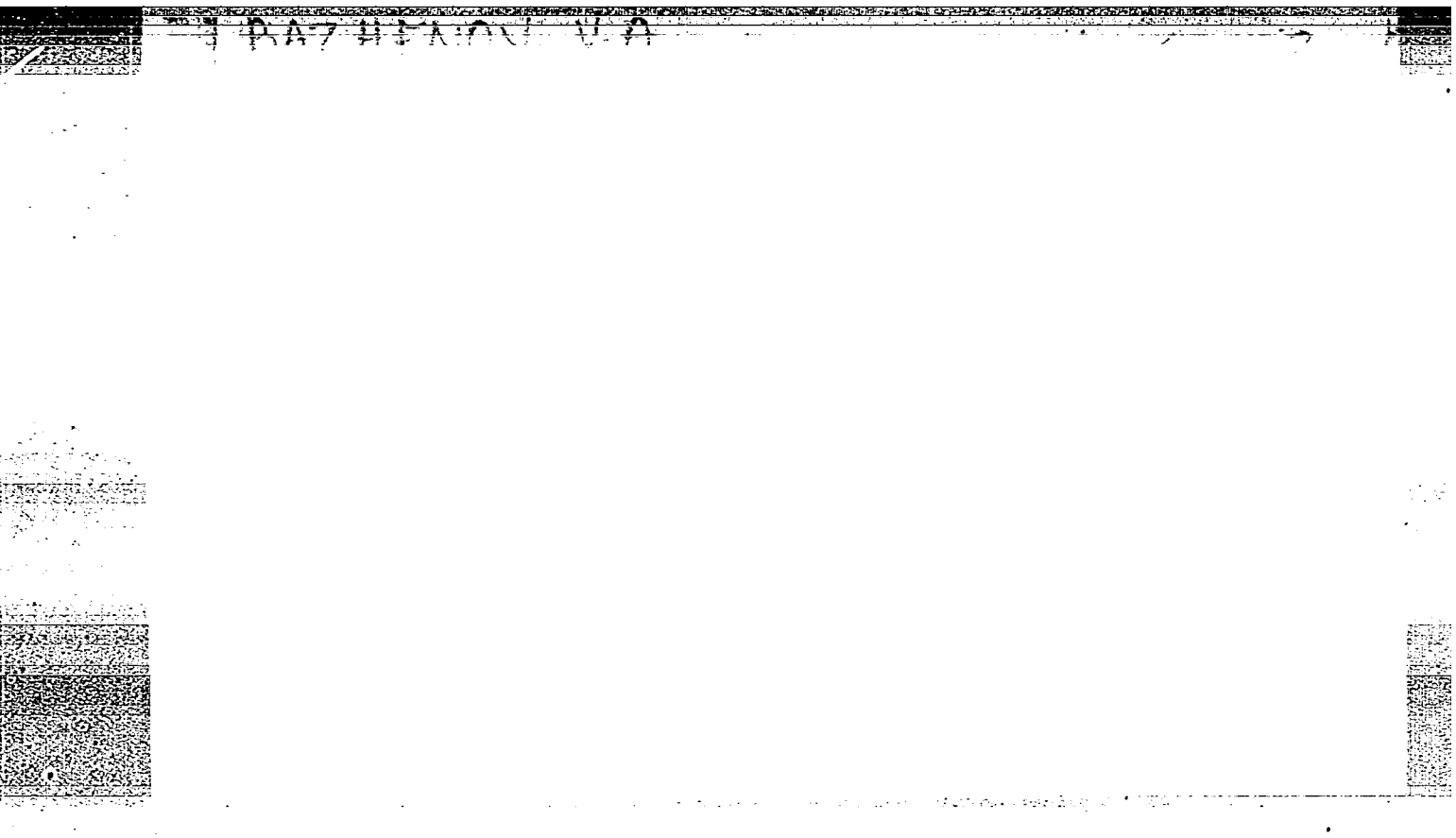
The permeability of water- and land-transported pine wood to saturated solutions of sodium chloride. V. A. Bazhenov. *Trudy Inst. Lesa, Akad. Nauk S.S.S.R.* 9, 216-28(1953); cf. preceding abstr.—The permeability of [illegible] pine sapwood and heartwood (I-s and I-h) to satd. NaCl [illegible]. The solns. absorbed in cc. per day under 0.72 m. hydrostatic head were 0.07, 15.9, 20.9, and 0.06, and the final H_2O content 48.2, 54.5, 57.0, and 15.10 for normal I-s (radial), blue-stained I- (radial), blue-stained I-s (tangential), and normal I-h (radial), resp., sample lengths approx. 15 mm. Water-transp[illegible] I had a higher NaCl soln. permeability than land-transported I. Blue-stained I-s (tangential) impregnated with paraffin at 150° had an av. soln. absorption of 0.22, 0.29, 0.29, and 0.44 cc./day av. at 1.5 m. hydrostatic head for the test period, and 0.070, 0.038, 0.050, and 0.[illegible] cc./day at the steady state for [illegible] and 31 days. J. L. K.

USSR

The moisture content of healthy and fungus-infected wood in the boles of growing trees. S. I. Vanin, V. A. Ilichenov, and V. E. Vikhrov. *Trudy Inst. Lesa, Akad. Nauk S.S.S.R.* 9, 253-60(1953).—Data are given on the moisture distribution and degree of fungal attack at various bole heights in 50-60-year-old aspens (I) infected with *Fomes igniarius*, and in 40-45-year-old oaks (II) infected with *Polyporus dryophilus*, *P. sulphureus*, and *F. robustus*. I showed the highest percentage of H_2O in the 1st stage of attack and the lowest in the 3rd stage; II showed no relationship between percentage of H_2O and degree of attack.

John Lake Keays

(2)



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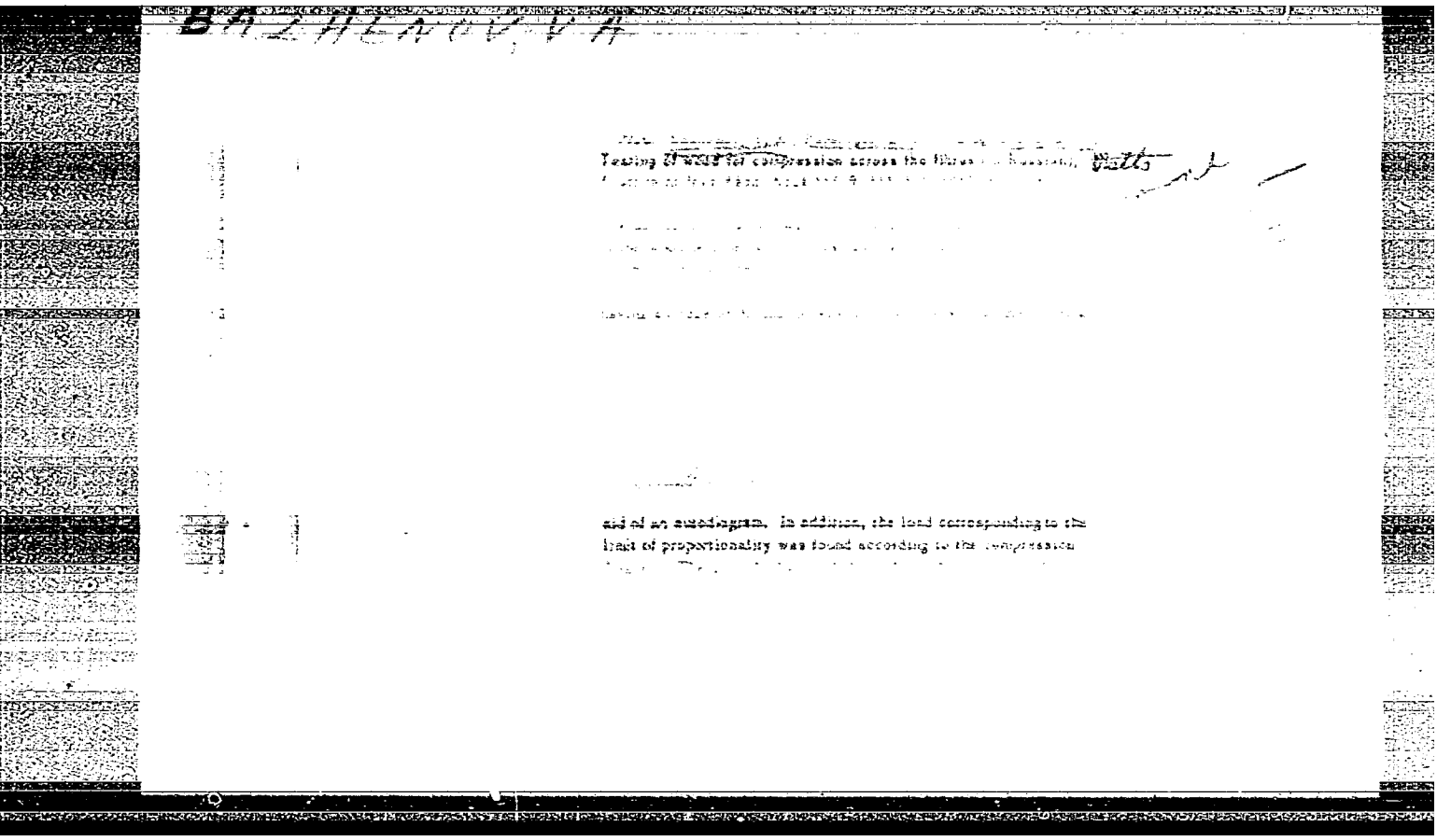

and of an autodiagram. In addition, the load corresponding to the limit of proportionality was found according to the compression

BAZHENOV, V A.

The dynamic modulus of elasticity of wood as an index of its physicomechanical properties. V. A. Bazhenov. *Trudy Inst. Lesa, Akad. Nauk S.S.S.R.* 9, 387-97(1953).—No substantial difference was found between the static and dynamic modulus of elasticity (E) (in kg. per sq. cm.) of wood test pieces for a ratio of free length to a height of not less than 25. E decreased from 85,000 at 3% H_2O to 62,000 at 10%, 50,000 at 20%, and approx. 50,000 at 30% H_2O (fiber satn. point) and remained const. with increasing H_2O content. E varied slightly with temp. from 20 to 100°. E for redwood, shortleaf, and floodl and oak (ds. 0.671, 0.655, and 0.758) was 65,700, 60,550, and 58,020, resp.; for the same 3 species of oak, for E of 67,980, 67,500, and 59,800, corresponding values for static bending strength were 1071, 1002, [illegible] for E of [illegible], 58,800, and 56,500, corresponding values for impact bending strength were 0.355, 0.245, and 0.271 kg./cc., resp. John Lake Keays

BAZHENOV, V.A.

USSR/ Chemistry of High-Molecular Substances F.

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11927

Author : Bazhenov V.A.
Inst : Academy of Sciences USSR
Title : Piezolectric Properties of Wood and Cellulose-Products

Orig Pub : Izv. AN SSSR, Ser. fiz., 1956, 20, No 2, 226-230

Abstract : Considerable piezoelectric effects have been detected in all varieties of wood, and the harder varieties have lower values of piezoelectric modulus. The same piezoelectric properties are exhibited by plates of oriented, fibrous wood cellulose, while in unoriented plates a piezoelectric effect is absent. Slight, but well defined piezoelectric properties were found in non-fibrous films of cellulose hydrate and nitrocellulose. Equal symmetry of piezoelectric texture ∞ : 2, in all the investigated samples, provided a basis for theoretical generalization of the experimental results: in all the investigated samples it is the cellulose molecules that bring about the piezoelectric properties. "Grains" of piezoelectric

Card 1/2

BAZHENOV, V.A.

"Principles and methods of anatomical research in wood." A.A.IAtsenko-Khmelevskii. Reviewed by V.A.Bazhenov. Bot.zhur.41 no.2:284 F '56. (MLRA 9:7)

1.Institut lesa Akademii nauk SSSR.
(Wood research) (IAtsenko-Khmelevskii, A.A.)

Bazhenov, V.A.

USSR/Physical Chemistry - Crystals. B-5

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3704.

Author : V.A. Bazhenov.
Inst :
Title : Wood Pulp as Piezoelectrical Texture.

Orig Pub: Kristallografiya, 1957, 2, No 1, 108-114.

Abstract: The influence of cellulose orientation in cell capsules of wood cells on the piezoelectrical properties of wood pulp as of a piezoelectrical structure is discussed taking into consideration the form and the laminated structure of cells.

Card : 1/1 -38-

BAZHENOV, Valeriy Afanas'yevich. IVANOV, Yu.M., prof., otv.red.; KUZNETSOVA, Ye.B., red.izd-va; ASTAF'YEVA, G., tekhn.red.

[Piezoelectric properties of wood] P'ezoelektricheskie svoistva drevesiny. Moskva, Izd-vo Akad.nauk SSSR, 1959. 238 p. (MIRA 12:12)

1. Chlen-korrespondent Akademii arkhitektury i stroitel'stva SSSR (for Ivanov).
(Wood--Electric properties) (Piezoelectricity)

BAZHENOV, Valeriy Afanas'yevich

"Piezoelectric Effect Of Wood."

report to be submitted for the Fifth World Forestry Congress, Seattle, Washington, 29-10 Sep 60

Deputy Director Inst. of Forestry & Wood Processing, Siberian Dept., Acad. of Sciences USSR, Krasnoyarsk.

BAZHENOV, V. A., Doc Tech Sci (diss) -- "The piezoelectric properties of wood-pulp, and the connection between them and its other physical properties and structure". Moscow, 1960, published by the Acad Sci USSR. 30 pp (Min Higher and Inter Spec Educ RSFSR, Moscow Forestry Engineering Inst), 175 copies

(KL, No 10, 1960, 129)

BAZHENOV, V.A., doktor tekhn. nauk, prof., otv. red.; LOSKUTOVA, I.P., red.; SIMKINA, G.S., tekhn. red.

[Studies in the field of chemistry and chemical technology of wood] Issledovaniia v oblasti khimii i khimicheskoi tekhnologii drevesiny. Moskva, Izd-vo AN SSSR, 1963. 121 p. (MIRA 16:12)

1. Akademiya nauk SSSR. Institut lesa i drevesiny.
(Wood—Chemistry)

BAZHENOV, V.A.; KYTMANOV, A.V.

Symmetry of the piezoelectric properties of normal and compressed cellulose. Kristalografiia 8 no.5:791-793 S-O '63. (MIRA 16:10)

1. Institut lesa i drevesiny Sibirskogo otdeleniya AN SSSR.

OSNACH, Nikolay Aleksandrovich. Prinimal uchastiye KOBUSHKIN, P.K., kand. fiz.-mat. nauk; BAZHENOV, V.A., red.

[Permeability and conductivity of wood] Pronitsaemost' i provodimost' drevesiny. Moskva, Lesnaia promyshlennost', 1964. 180 p. (MIRA 17:9)

1. Zaveduyushchiy kafedroy fiziki Ukrainskoy sel'skokhozyaystvennoy akademii (for Kobushkin).

POTEMKIN, O.A.; BAZHENOV, V.A.

Scientific bases for climatic testing of articles and materials. Standartizatsiia 29 no.7:23-25 Jl '65.
(MIRA 18:11)

L 00562-66 EWT(m)/EWP(w)/EWP(t)/EWP(v)/EWP(j)/EWP(k)/T-2/ETC(m)/ WW/EM/RM

ACCESSION NR: AR5014702 UR/0124/65/000/005/V070/V070

SOURCE: Ref. zh. Mekhanika, Abs. 5V587

AUTHOR: Bazhenov, V. G.

TITLE: Stress concentrations in turbine disks

CITED SOURCE: Sb. Vopr. mekhan. i mashinostr. Kiyev, Kiyevsk. un-t, 1964, 88-93

TOPIC TAGS: gas turbine disk, stress concentration, contact point effect, asymmetric disk, extended disk hub

TRANSLATION: The author reports the results of an experimental analysis of the stressed state of a real gas turbine disk. The disk is asymmetric, with a diameter of 146 mm. It was cast complete with blades and has an extended hub, which descends into the disk seat in the form of a conical shell. The measurements employed strain-gauge resistor sensing elements (base 5 mm, resistance 50 mm), glued with BF-2 adhesive in radial and tangential patterns. Connecting wires were fastened to the disk by strips of tracing paper similarly glued on. The gluing method was reliable at velocities up to 350 m/sec. Indications of each pickup and of the current collector channel corresponding to it were subject to a correction defined from differences between readings prior to starting and immediately

Card 1/2

L 00562-66

ACCESSION NR: AR5014702

after the disk stopped. This method permitted compensation of changes in resistance of the bridge extension arms attributable to heating during rotation of the disk and the current collector housing. The effect of heating in the latter is dictated by the accompanying significant increase in the resistance of thin assembly wires within it. Experimental results were compared with calculated data obtained with conventional methods which assume symmetry of the profile and ignore deflection of the disk and possible stress concentrations at points of contact (i.e. seat and hub, etc.). It was shown that actual stresses can exceed calculated values to a significant extent. For example, at points of transition from hub to disk seat and at the point of contact between blade and rim, the measured stresses were 300% higher than calculated values. V. P. Rabinovich

SUB CODE: AS ENCL: 00

2/2
JP

BAZHENOV, V.G., inzh.; KOZLOV, I.A., kand. tekhn. nauk

Using strain gauges for determining stressed state in concentration areas. Mashinostroenie no.5:90-92 S-O '65. (MIRA 18:9)

L 5437-66 EWT(M)/EWP(w)/EWr(v)/T-2/EWr(k)/EIC(m) WW/EM
ACC NR: AP5024782 SOURCE CODE: UR/0021/65/000/009/1157/1160

AUTHOR: Pysarenko, H. S.—Pisarenko, G. S. (Academician AN UkrSSR); Bazhenov, V. H.—Bazhenov, V. G.; Kozlov, I. A.

ORG: Institute of the Problems of the Science of Materials, AN URSR (Instytut problem materialoznavstva AN URSR)

TITLE: The stress concentration around eccentric openings in operating turbine and pump disks

SOURCE: AN UkrRSR. Dopovidi, no. 9, 1965, 1157-1160

TOPIC TAGS: turbine disk, disk opening, stress concentration, stress calculation, stress

ABSTRACT: Theoretical formulas presently used to calculate the stress concentration around circular openings located in a rotating turbine or a pump disk at a distance from its center are analyzed and compared with formulas derived from experimental data. Theoretical values of the stress-concentration factor were as much as 30—34% lower than the experimental values, regardless of the diameter of the openings or their distance from the disk center or rim. On the basis of the experimental data, corrective coefficients for calculating the radial and tangential stress concentrations were derived which reduced the difference between the theoretical and experimental values of the

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09010632

L 5437-65

ACC NR: AP5024782

stress concentration to 17—30%. Thus even improved formulas cannot be used to calculate all the factors which affect the stresses near an eccentric opening. Thus it can be concluded that in an operating rotating turbine or pump disk, a maximum stress concentration can appear at any point of an eccentric opening, depending on the location of openings and the effect of various other factors. Orig. art. has: 1 figure and 10 formulas. [MS]

SUB CODE: PR,IE/ SUBM DATE: 26Oct64/ ORIG REF: 001/ OTH REF: 001/

ATD PRESS: 4133

Card 2/2

KOZLOV, I.A., kand. tekhn. nauk; BAZHENOV, V.G., inzh.

Investigating stress concentration in rotating disks beyond elastic limit. Vest. mashinostr. 43 no.12:15-17 D '63. (MIRA 17:8)

KOZLOV, I.A., kand.tekhn.nauk; BAZHENOV, V.G., inzh.

Testing stand for rotating disks of turbomachines. Mashinostroenie no.1:25-28 Ja-F '64. (MIRA 17:7)

KOZLOV, I.A., kand.tekhn.nauk; BAZHENOV, V.G., inzh.; LEBEDEV, I.V., inzh.; MATVEYEV, V.V., inzh.

Effect of stress concentrators on the strength of rotating discs. Energomashinostroenie 10 no.1:35-37 Ja '64. (MIRA 17:4)

ACCESSION NR: AP4020094 S/0304/64/000/001/0025/0028

AUTHORS: Kozlov, I. A. (Candidate of technical sciences); Bashenov, V. G. (Engineer)

TITLE: Stand for testing rotating turbomachine disks

SOURCE: Mashinostroyeniye, no. 1, 1964, 25-28

TOPIC TAGS: test stand, turbine wheel stress, destructive testing, generator PN 400, generator PN 290, generator A61 4, tachometer ICh6, oscillograph EO 7

ABSTRACT: A stand which permits testing of disks under stress, plastic deformation, and destructive stresses at speeds up to 60 000 RPM is described. The testing installation is compartmented to permit easy changing of the different parts. A schematic of the installation is shown in Fig. 1 on the Enclosures. The tested disks are driven by a D.C. motor PN-400 through a two-stage gear reduction (4-ratio 1:4 and 6 ratio 1:15) which permits speeds to 90 000 RPM, although in practice the speeds are restricted by ball bearing limitations. The test section is connected to the drive through the coupling (9) and is contained in a steel test chamber (16) which limits the size of the test disks to less than 1000 mm in

Card 1/5

ACCESSION NR: AP4020094

diameter. The mounting detail of the disk is shown in Fig. 2 on the Enclosures and includes a cooling system for the supporting bearings with compressed air, water, and oil. The test facility is instrumented to permit dynamic stress and temperature measurements. The construction of the test facility permits experimental work on a large range of disk sizes and under different stress and temperature conditions. Orig. art. has: 2 figures.

ASSOCIATION: Institut metallokeramiki i spetssplavov AN USSR (Institute of Metal Ceramics and Special Alloys, AN UkrSSR)

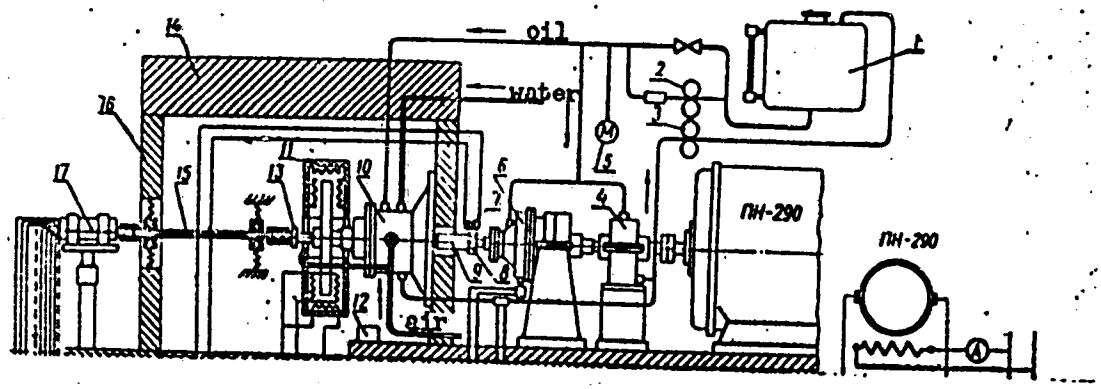
SUBMITTED: 00 DATE ACQ: 31Mar64 ENCL: 03

SUB CODE: IE NO REF SOV: 000 OTHER: 000

Card 1 2/5

ACCESSION NR: AP4020094

ENCLOSURE: 01



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ACCESSION NR: AP4020094 ENCLOSURE: 02

To card 3/5

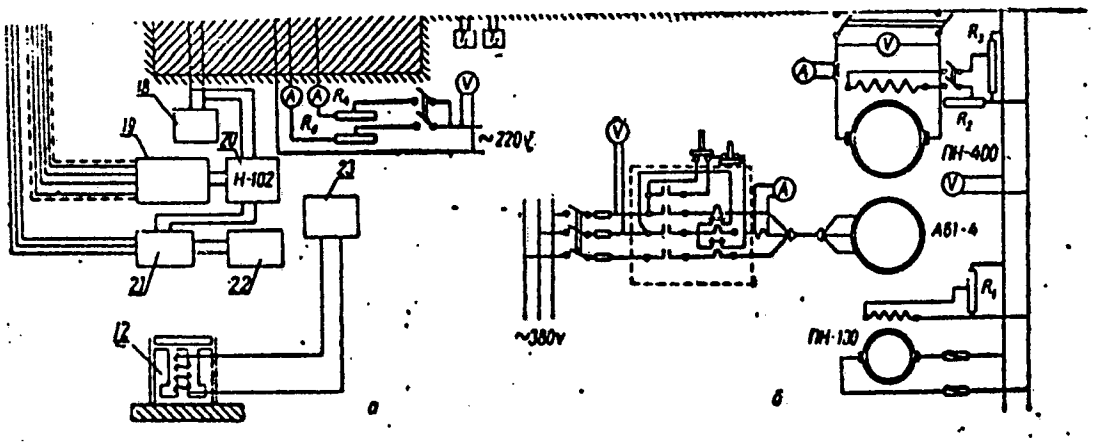

Fig. 1. Schematic of test stand for turbine disks: a- mechanical part with control console; b- principal electrical part.

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ACCESSION NR: AP4020094

ENCLOSURE: 03

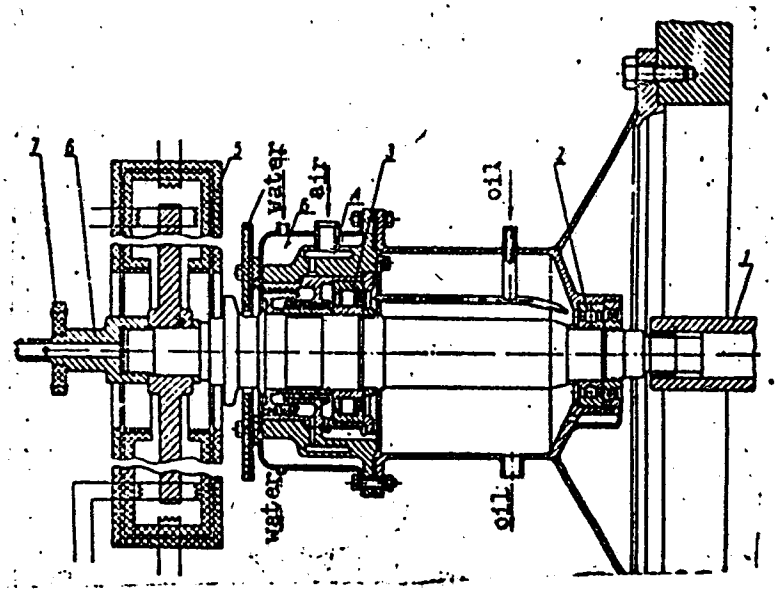

Fig. 2. Disk support.

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L 42213-65 EWT(d)/EWP(t)/T-2/EWP(k) PP-4 BM

ACCESSION NR: AR5008891 S/0265/65/000/002/0018/0018

SOURCE: Ref. zh. Turbostroyeniye. Otdel'nyy vypusk, Abs 2.49.111

AUTHOR: Bacheev, A. P.

TITLE: Stress concentration in turbine disks

CITED SOURCE: Sb. Vopr. mekhan. i mashinostr. Kiyev, Kiyevsk. un-t, 1964, 88-93

TOPIC TAGS: gas turbine, turbine disk, stress concentration, static test stand

TRANSLATION: The author reports the results of an experimental study of the stressed state in the real disk of a gas turbine. These data are compared with calculated data obtained by using standard methods. The tests were carried out on an acceleration stand designed at the Laboratoriya metallokeramiki i spetssplavov AN UkrSSR (Institute of Cermet Materials and Special Alloys, AN UkrSSR).

SUB CODE: PR ENCL: 00

Card 1/1

PISARENKO, G.S. [Pysarenko, H.S.], akademik; BAZHENOV, V.G. [Bazhenov, V.H.]; KOZLOV, I.A.

Concentration of stresses around eccentric holes in real turbine discs and pump discs. Dop. AN URSR no.9:1157-1160 '65. (MIRA 18:9)

1. Institut problem materialovedeniya AN UkrSSR. 2. AN UkrSSR (for Pisarenko).

ACC NR: AM5028882 (N) Monograph UR/

Kozlov, Igor' Andreyevich; Bazhenov, Vladimir Grigor'yevich

Limiting carrying capacity of the parts of turbomachines (Predel'naya nesushchaya sposobnost' elementov turbomashin) Kiev, Naukova dumka, 1965. 166 p. illus., biblio. (At head of title: Akademiya nauk Ukrainskoy SSR. Institut problem materialovedeniya) 1300 copies printed.

TOPIC TAGS: turbine, turbine design, turbine disc

PURPOSE AND COVERAGE: This book is intended for engineers and scientists concerned with the strength of machine parts, as well as for professors and students at technical schools of higher education. Methods, based on experimental data, for determining maximum safe load of turbine parts are presented. On the basis of their own experimental data, the authors attempt to analyze methods for determining load-carrying capacities and to evaluate the errors resulting from the use of conventional premises and hypotheses for calculating strength. Recommendations, based on the authors' experiments, are offered to enable a more correct determination of the maximum safe load of structural members. Some of the equipment used for conducting the experiments are described. The experiments were carried out at the High-Temperature

Card 1/2

ACC NR: AM5028882

Strength Department of the Institute for Problems in Science of Materials, Academy of Sciences USSR.

TABLE OF CONTENTS [abridged]:

SUB CODE: 13 09,/ SUBM DATE: 08Jan65/ ORIG REF: 043/ OTH REF: 017

Card 2/2

L 57052-65 EWA(h)/EWP(k)/EWP(e)/EWT(d)/EWT(m)/T-2/EWP(b)/EWA(d)/EWP(w)/EWP(t)

ACCESSION NR: AP5011874 UR/0198/65/001/005/0066/0071

AUTHORS: Kozlov, I. A. (Kiev); Bashenov, V. G. (Kiev); Leshchenko, V. M. (Kiev)

TITLE: Determining stresses and deformations in rotating disks beyond the proportionality limit

SOURCE: Prikladnaya mekhanika, v. 1, no. 5, 1965, 66-71

TOPIC TAGS: continuum mechanics, plasticity theory, elasticity theory, deformation rate, stress load, plastic deformation

ABSTRACT: The deformation curves are obtained experimentally on rotating disks in [illegible] range of the material. Two types of steels are used for the disks [illegible] by means of accurate strain gauges resistance type [illegible]. The [illegible] diameters of 300 mm, internal diameters of 70 mm, and a thickness of 2 mm. The experimental results were compared with two types of theoretical calculat[illegible], one based on ideal theory of plasticity, the other based on the theory of small elastic-plastic deformations. The results are shown on Fig. 1 as the [illegible] of the propagation of the plastic region versus the disk rotation rate. Curve A

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corresponds to the ideal plastic theory calculation, curve C, theory of small elastic-plastic deformations, and curve B, to experiments. These results show that the plastic theory underestimates the number of rotations at which plastic deformation sets in for both disks. On the other hand, the small deformation theory does not reflect the true behavior of the material. Other curves are obtained for the stresses in the disks after exceeding the proportionality limit. These [illegible] the theory of ideal plasticity as a [illegible] the [illegible] material. Orig. art. has: 14 formulas and 4 figures.

ASSOCIATION: Institut problem materialovedeniya AN UkrSSR (Institute for Problems in Study of Materials, AN UkrSSR)

SUBMITTED: 15Oct64 ENCL: 01 SUB CODE: AS,ME

NO REF SOV: 003 OTHER: 000

Card 2/3

L 57092-65

ACCESSION NR: AP5014826

ENCLOSURE: 01

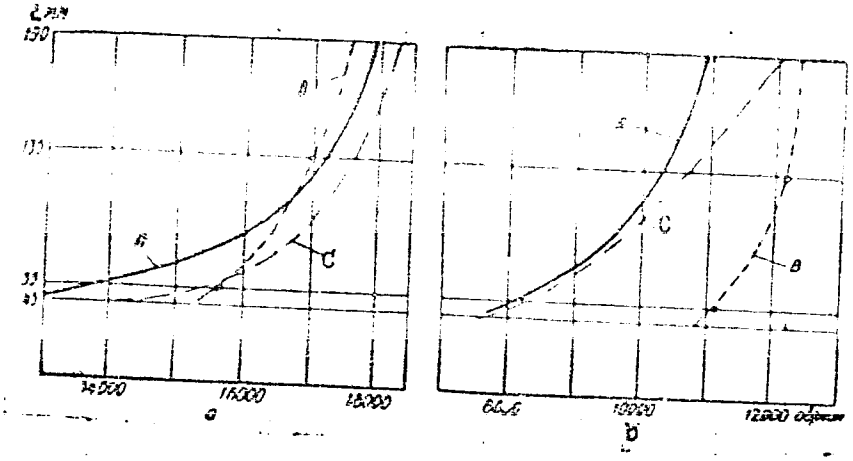

Fig. 1

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L 13851-66 EWP(j)/EWP(z)/EWT(m)/EWP(b)/T/EWA(d)/EWP(e)/EWP(w)/EWP(t) RM/WH/JD

ACC NR: AP5028983 SOURCE CODE: UR/0122/65/000/009/0009/0012

AUTHORS: Kozlov, I. A. (Candidate of technical sciences); Bashenov, V. G. (Candidate of technical sciences)

ORG: none

61

B

TITLE: Failure of rotating disks

SOURCE: Vestnik mashinostroyeniya, no. 9, 1965, 9-12

TOPIC TAGS: turbine rotor, pump impeller, mechanical failure, material failure, solid mechanical property

ABSTRACT: To determine the relative merits of using the maximum normal stress σ_{max}^{y} (calculated on the basis of elastic deformations) or the average stresses σ_{t}^{av} and σ_{r}^{av} (based on complete redistribution of stresses) in predicting the failure of rotating disks, experiments were performed with flat disks and with complicated rotor shapes such as shown in Fig. 1 (turbine wheels) and Fig. 2 (pump impellers). The experiments were performed on the apparatus described previously by the authors (Stend dlya ispytaniya vrashchayushchikhsya diskov turbomashin. Sb. Mashinostroyeniye, No. 1, ITI, Kiyev, 1964) with flat disks of aluminum (AL4-T6), cast iron, metalloceramic and organic glass and with complicated rotor shapes of chromium-nickel steel. Flat disks

Card 1/3 UDC: 621-226.001.5:539.4

L 13851-66

ACC NR: AP5028983

6

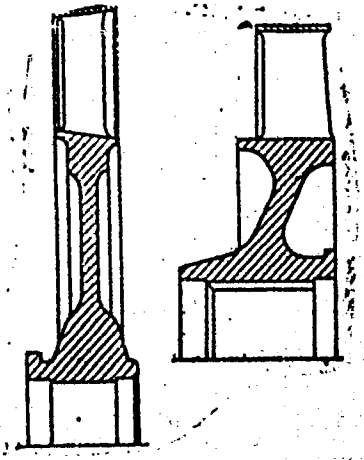

Fig. 1. Turbine rotor shapes.

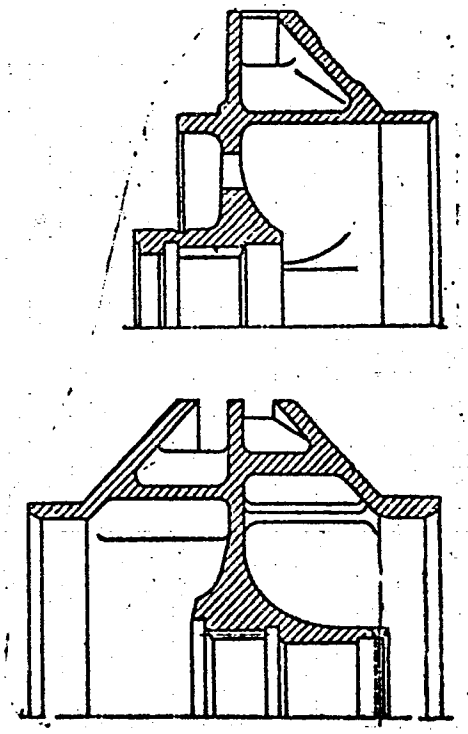

Fig. 2. Pump impeller shapes.

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L 13851-66
ACC NR: AP5028983

with central and eccentric holes were used. For the latter, the theoretical stress σ_k^y at the stress concentrator ($k_T = 3 - \sigma_r/\sigma_t$) and the effective stress σ_k^{ef}

$$q = \frac{k_{ef} - 1}{k_T - 1}.$$

were calculated. The plasticity of the material was specified by the residual elongation δ. The ratios of the above-mentioned stresses (where applicable) to the yield stress σ_b were tabulated at failure. It was found that: the relative strength σ_{max}^y/σ_b of the turbine rotors ($\delta = 3.0\%$) was the same (≈ 1.43) as that of flat cast iron disks ($\delta = 0.25$), indicating the importance of geometry on strength; the high ductility ($\delta = 12$) of the impellers permitted a much higher value (≈ 1.85) when the stress at the stress concentrations was used as σ_{max}^y; the stress σ_{max}^{ef}, calculated with consideration of the plastic properties of the material, agreed well with the yield stress ($\sigma_{max}^{ef}/\tau_b = 1.0$, 0.95, and 1.11 for aluminum, cast iron, and steel respectively) but this calculation is impractical with complicated shapes; σ_{max}^y is exact only for very brittle materials ($\delta = 0$), while σ_t^{av} or σ_r^{av} are good only for ductile materials ($\delta > 3$-4%); stress concentrations must be considered regardless of ductility. Orig. art. has: 4 formulas, 1 table, and 6 figures.

SUB CODE: 13,20/ SUBM DATE: none/ SOV REF: 006/ OTH REF: 001
Card 3/3

KOZLOV, I.A., kand. tekhn. nauk; BAZHENOV, V.G., kand. tekhn. nauk

Evaluation of the strength of turbine discs. Energomashinostroenie 11 no.9:28-30 S '65. (MIRA 18:10)

L 2445)-66 EWI(m)/EWP(w)/EWP(t)/EPF(n)-2/EWP(v)/T-2/EWP(k)/ETC(m)-6 IJP(c)
ACC NR: AT6008674 (N) SOURCE CODE: UR/0000/65/000/000/0294/0304
JD/WW/HW/JG/EM/GS

AUTHORS: Kozlov, I. A. (Kiev); Bazhenov, V. G. (Kiev); Leshchenko, V. M. (Kiev)

ORG: none

TITLE: Investigation of the stressed condition and strength of gas turbine disks

SOURCE: Vsesoyuznoye soveshchaniye po voprosam staticheskoy i dinamicheskoy prochnosti materialov i konstruktsionnykh elementov pri vysokikh i niakikh temperaturakh, 3d, Termoprochnost' materialov i konstruktsionnykh elementov (Thermal strength of materials and construction elements); materialy soveshchaniya. Kiev, Naukova dumka, 1965, 294-304

TOPIC TAGS: turbine blade, turbine wheel, gas turbine, stress analysis, fatigue strength

ABSTRACT: The stress conditions and strength of chromium-nickel gas turbine disks of complicated profile were experimentally investigated and compared with theoretical results obtained by dividing the disk into circular sections (G. S. Pisarenko, i dr., Nekotoryye voprosy prochnosti lopatok i diskov gazovykh turbin, Izd-vo AN UkrSSR, 1962). The disks were cast integral with the turbine blades. Stress profiles were obtained at 18 000 and 24 000 rpm, and maximum discrepancies of 18% with calculated values were observed (curves of the calculated and experimental stress profiles are presented) for symmetrical disks, and of 150--160% for conically shaped disks. Stress profiles were also obtained for the two types of disks just prior to failure (at

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L 24451-66

ACC NR: AT6008674 O

44 500 and 54 000 rpm respectively, for 196- and 148-mm outside diameter). It was found that the maximum stresses at failure were different by 50% from calculated values. It is concluded that present theoretical methods are inadequate for predicting the strength of complicated turbine disks. Orig. art. has: 10 formulas and 7 figures.

SUB CODE: 13, 20/ SUBM DATE: 19Aug65/ ORIG REF: 011

Card 2/2 dda

L 24463-66 EWT(m)/EWP(w)/EWP(f)/EPF(n)-2/EWP(v)/T/EWP(j)/EWP(k)/ETC(m)-6 IJP(c)
ACC NR: AT6008676 WW/EM/GS/JK(N)/(CZ)/RM SOURCE CODE: UR/0000/65/000/000/0311/0316

AUTHORS: Balyuk, A. D. (Kiev); Bazhenov, V. G. (Kiev); Kozlov, I. A. (Kiev); Matveyev, V. V. (Kiev)

ORG: none

TITLE: On the investigation of vibration damping of turbine blades on rotating disks at high temperatures

SOURCE: Vsesoyuznoye soveshchaniye po voprosam staticheskoy i dinamicheskoy prochnosti materialov i konstruktsionnykh elementov pri vysokikh i nizkikh temperaturakh, 3d., Termoprochnost' materialov i konstruktsionnykh elementov (Thermal strength of materials and construction elements); materialy soveshchaniya. Kiev, Naukova dumka, 1965, 311-316

TOPIC TAGS: turbine blade, turbine rotor, vibration damping, vibration stress, high temperature effect

ABSTRACT: The experimental apparatus used for studying the damping of turbine blades on rotating disks at high temperatures is described. The disks are mounted on an acceleration stand, as suggested by G. S. Pisarenko, and I. A. Kozlov (O nesushchey sposobnosti bystrovrashchayushchikhsya diskov, Ukrgostekhizdat, 1962), which has a special electronic speed indicator-regulator and which can be heated to 870--970K before starting the test. The damping curves are obtained on an N-102 oscillograph

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L 24463-66
ACC NR: AT6008676 2

which receives signals from special high temperature resistance strain gages (heat-treated constantan wire) bonded with B-58 cement. The blades are excited by a bullet from a small caliber gun which can be fired ten times during a run. Circuit diagrams of the speed indicator, gun triggering, and oscillograph triggering circuits are given, and a sample trace of free, damped vibrations of a blade travelling at 300 rad/sec at 570K is presented. Orig. art. has: 5 figures.

SUB CODE: 21, 20/ SUBM DATE: 19Aug65/ ORIG REF: 005/ OTH REF: 001

Card 2/2

ACC NR: AT7003567 (N) SOURCE CODE: UR/3240/66/000/001/0103/0107

AUTHORS: Bazhenov, V. G.; Kozlov, I. A.; Leshchenko, V. M.

ORG: Institute for Problems in the Study of Materials, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Investigation of stressed condition in rotating disks with stress concentrators

SOURCE: Kharkov. Politekhnicheskiy institut. Energeticheskoye mashinostroyeniye no. 1, 1966. Teploobmen i gazodinamika (Heat transfer and gas dynamics), 103-107

TOPIC TAGS: stress concentration, stress distribution, turbine disk

ABSTRACT: The stress distribution in a rotating disk with eccentric holes is investigated experimentally. The coefficient of stress concentration is defined by

$$K_\sigma = 3 - \frac{d}{b} - \frac{\sigma_r}{\sigma_t}$$

where b is the closest distance between holes. The investigation is carried out with a turbine disk as shown in Fig. 1. The stresses were estimated by means of strain gauges and plotted graphically as a function of x/d. The calculated stresses at the three points 1, 2, 3 were found to be 9.25 and 15% lower than measured values. The experimental data show that the highest stress concentration occurs at point 2 for which $K_\sigma = 2.65$

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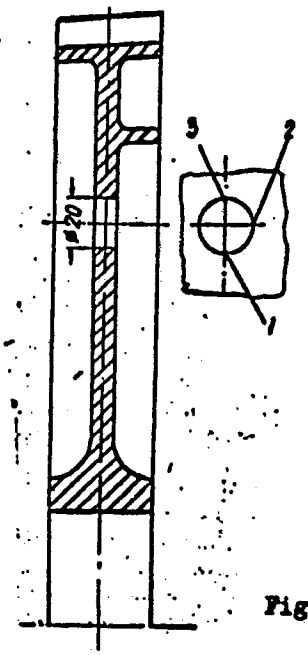

Fig. 1.

Orig. art. has: 4 figures and 3 formulas.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 001

Card 2/2

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ACC NR: AP6022026

to trigger a flip-flop. The positive pulse from this flip-flop is fed to a synchronous detector which is also supplied with a 87 Hz modulation voltage through a phase inverter and a phase shifter. A Helmholtz coil and a ZG-10 generator are used for the low frequency modulation of the magnetic field. The signal from the synchronous detector is limited, differentiated and is used to trigger a flip-flop whose positive pulses are integrated by an RC circuit. As soon as the voltage across the integrating network exceed a certain level, a multivibrator is switched and the contacts of a relay which feeds the stepping switch are opened, thereby changing the frequency of the autodyne. After 10 markers are obtained, the system returns it to its initial state. Another group of relay contacts closes the input to an electronic recording potentiometer and calibration markers are recorded on the chart. The maximum rate at which the field is covered is determined by the sensitivity and by the reaction time of the system, by the frequency of modulation and by the distance between markers and is approximately 1.5 sec^{-1}. The accuracy of the markers depends on the stability of the autodyne frequency and is $1 \cdot 10^{-2}$ oersted when the stability is $5 \cdot 10^{-5}$. The circuit diagram with all component values is shown as well as a typical recording of the electron paramagnetic resonance spectrum. Orig. art. has: 2 figures.

SUB CODE: 20,09/ SUBM DATE: 10Mar65/ ORIG REF: 002/ OTH REF: 003

Card 2/2

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